

Arsenal signs million-dollar contract for WP renovation

by Rachel Newton

As the only manufacturer of white phosphorus munitions in the western hemisphere, Pine Bluff Arsenal is now steps closer to modernizing the WP plant originally constructed in the 1940s.

In late September, officials signed a \$20 million contract for the modernization project with Shaw Environmental, Inc., headquartered in Stoughton, Mass.

"This is the contract largest project we have undertaken on the industrial side," said Emami Esmaeilpour, director of the Directorate Engineering and Technology. "The modernization effort will improve the safety, environmental performance, flexibility of the operations, and efficiency of the filling of the munitions."

Esmaeilpour said that the entire project – from design to contract – has been a joint effort with PBA, the Chemical Materiel Command and PEO Ammunition Office.

One of the largest investments in PBA's industrial capacity since the early 1980s, Col. Brian Lindamood, Arsenal commander, said that this modernization will be key component of posturing the Arsenal for future workload. "It will add state-of-the-art safety features and greatly improve production efficiency," he said in a recent statement.

WP is a white or pale yellow, translucent waxy chemical solid used for smoke screening and obscuration by the military, according to Allen Dehaghani, WP project engineer.

"It is used in many different industries," he said. "PBA is the only facility that uses the raw materials, which are extracted from phosphorus rocks, and is a by-product. The amazing thing is that it is used in almost every product out there – from soft drinks to toothpaste."

The form used by PBA is highly energetic (active) and ignites once it is exposed to oxygen, said Dehaghani. "This makes it absolutely essential that we keep it in an environment that is away from oxygen – either inside an inert atmosphere or under a layer of water. In a heated format, it is extremely dangerous and can create damaging burns."

The design phase of the project, which took about two and a half years, was a collaborative effort between PBA, Science Applications International Corporation (SAIC) and Jacobs Engineering Group.

"The WP project is a very complex system because not only are we replacing the manufacturing lines, we are replacing the complete system – including supporting elements such as the scrubber and wastewater systems," said Dehaghani. "We are going to introduce the latest environmental equipment that is available to try to minimize the waste generated. It is going to be more efficient."

The line will be downsized as a result of the modernization, going from four to one production line. "The requirement for WP has been reduced. That is the reason for downsizing," he said. "However, we are optimizing the process at the same time and lean manufacturing concepts will be introduced."

One unique part of the process, said Dehaghani, is that WP production will continue through the construction phase. "The WP facility is one of the largest in production at the Arsenal," he said. The plan is to divide the building in half and have the existing equipment be operational during installation of the new systems. Three new buildings are also going to be added to the new facility – a scrubber and wastewater system, and storage facility."

Shaw has already begun preliminary work on the project. Fabrication and installation is expected to take approximately 15 months. Testing of the new line is tentatively scheduled for early 2007 and the new systems are set to be online by second quarter of 2007.

Additional parts of the overall project – part of the capital investment portion – were awarded to Tri-State Industrial Contractors, Inc. of Texarkana, Ark., for infrastructure work; High Voltage Maintenance, Inc., of Quitman, Ark., for electrical work; and Quality Fence Company of Pine Bluff for fence work.